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## **Philosophical Transactions**

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*A Letter of Mr. Franc. Linus, written to the Publisher from Liege the 25th of Febr. 1675. ft.n. being a Reply to the Letter printed in Numb. 110. by way of Answer to a former Letter of the same Mr. Linus, concerning Mr. Isaac Newton's Theory of Light and Colours.*

*Honoured Sir,*

**I**N yours of *Dec. 17.* which I received about the end of *Jan.* you say, I may rest assured, *First*, that the Experiment was made in clear days. *Secondly*, that the Prism was placed close to the hole, so that the light had no room to diverge: And *thirdly*, that the Image was not Parallel (as I conjectured) but Transverse to the Axis of the Prism. Truly, Sir, if these Assertions be admitted, they do indeed directly cut off what I said of Mr. *Newton's* being deceived by a bright cloud. But if we compare them with Mr. *Newton's* Relation of the Experiment in the *Phil. Transactions*, N. 80 p. 3076. it will evidently appear, they cannot be admitted as being directly contrary to what is there delivered. For there he tells us, the ends of the coloured Image, he saw on the opposite wall, near five times as long as broad, *seemed to be Semicircular*. Now these Semicircular Ends are never seen in a clear day, as Experience shews. From whence follows against the *first* Assertion, That the Experiment was not made in a clear day. Neither are those Semicircular Ends ever seen, when the Prism is placed close to the Hole; which contradicts the *second* Assertion. Neither are they ever seen, when the Image is Transverse to the length or Axis of the Prism; which directly opposes the *third* Assertion. But if in any of these three Cases, the Image be made so much longer than broad (as easily it may, by turning the Prism a little about its Axis) near five times as long as broad, than the one End thereof will run out into a sharp Cone or Pyramid like the flame of a Candle, and the other into a Cone somewhat more blunt; both which are far from seeming Semicircular: Whereas, if the Image be made not in a clear day, but with a bright cloud, and the Prism not placed close to the Hole, but in a competent distance from the same (as you see it placed in the Scheme of the Experiment in *N. 84. p. 4091.*) then these Semicircular Ends always appear with the sides thereof straight lines just as Mr. *Newton* there describes them. Neither

is the length of the Image Transverse, but Parallel to the length of the Prism. Out of all which evidently follows, that the Experiment was not made in a clear day ; nor with the Prism close to the Hole ; nor yet with the Image Transverse (as is now affirmed,) but by a bright Cloud, and a Parallel Image ( as I conjectured ; ) and I hope you will also now say, I had good reason so to conjecture, since it so well agrees with the Relation : And Experience will also shew you, if you please to make tryal, as it was made , in a dark Chamber, and observe the difference between such an Image made by a bright Cloud, and another made by the immediate rayes of the Sun : For, the former you shall always find Parallel, with the Ends Semicircular ; but the latter you shall find Transverse, with the Ends Pyramidical, as aforesaid, whensoever it appears so much longer than broad.

More might be said out of the same Relation, to shew that the Image was not Transverse. For, if it had been Transverse, Mr. *Newton*, so well skilled in Opticks, could not have been surpris'd (as he says he was) to see the length thereof so much to exceed the breadth ; it being a thing so obvious and easie to be explicated by the ordinary Rules of Refraction. That other place also , in the next page 3077. (where he says, the Incident Refractions were made in the Experiment equal to the Emergent,) proves again that the said oblong Image was not Transverse, but Parallel. For it is impossible, the Transverse Image should be so much longer than broad, unless those two Refractions be made very unequal, as both the computation according to the common Rules of Refraction, and Experience testifie. Wherefore Mr. *Newton* had no reason to tax (in pag. 4091.) P. *Pardies* of Hallucination, for making in page 4088. those two Refractions very unequal : For , that learned Optike very well saw, that in a clear day so great an inequality of length and breadth could not be made, unless those two Refractions were also made very unequal. These places, I say, might be added to the former, and further here explicated if need were ; but there being no need, I cease to detain you any longer herein.